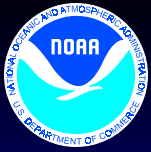
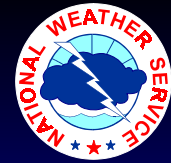


National Weather Service

Introduction to the
National Weather Service

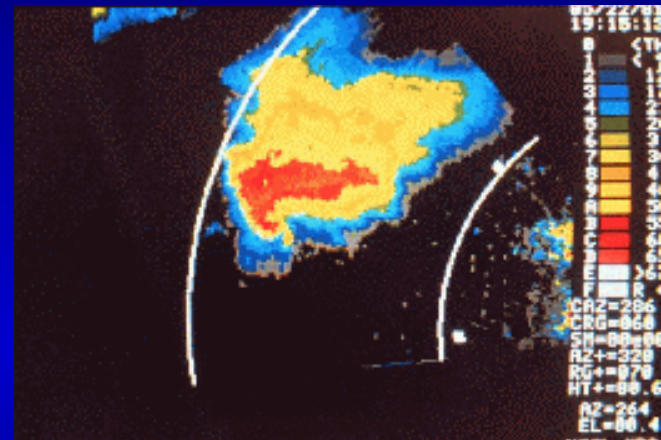


Our Mission



- **Provide weather, water and climate forecasts and warnings**

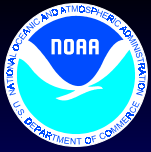
- To America
- To protect life and property
- To enhance the national economy



- **Provide a national information database for**

- Government agencies
- Private sector
- Public
- Global community

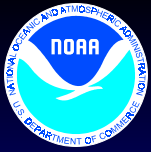




Legislative Mandates/Authorities

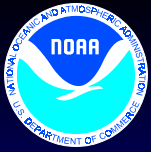


- **Organic Act (1890), 15 USC Sec. 313- Issue weather and flood warnings and forecasts**
- **Aviation (1958) 49 USC 44720 - NWS support aviation flight operations**
- **Weather Service Modernization Act (1992) 102-567 - Legal process for NWS restructuring and modernization**



Why We're Here

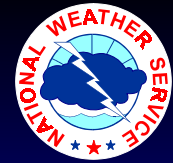
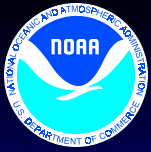
- **Basic Source of Weather Information for the Country**
- **High Impact Government Agency**
- **U.S. Severe Weather Prone**
- **Significant Economic Benefits to the Nation**



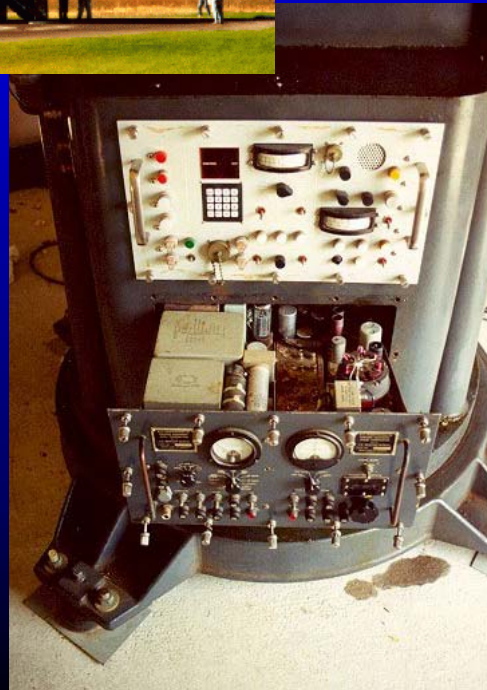
Observe



- **NEXRAD Network**
- **ASOS Network**
- **GOES & Polar Satellite Data**
- **Upper Air Observing Network (Radiosondes, Aircraft)**
- **Data Buoys, Coastal-Marine Automated Network**
- **Cooperative Observer Program**
- **Airborne Surveys of Snowfall**
- **Lightning Data Network (Privately-owned)**
- **Stream Gauge Network (Multiple Government Agencies)**
- **Other Observations**

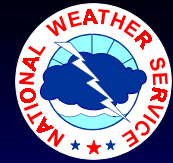
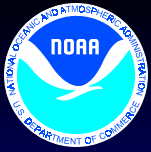


Radiosonde



Key source of data for
weather prediction models
102 stations:

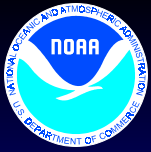
- Temperature
- Humidity
- Pressure
- Wind Speed and Direction
- 30 levels of observations (surface to 30km +)
- Twice daily (80,000 annually)
- Current system is obsolete



Data Buoy



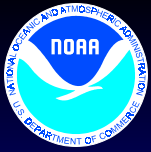
- **107 NWS Stations (58 Buoys/49 Land-Based)**
- **Parameters**
 - Pressure
 - Wind Speed/direction
 - Peak Wind
 - Air temperature
 - Sea temperature
 - Wave height
 - Wave period
 - Reported hourly
- **Uses**
 - Local marine weather warning and forecast program
 - Shipping/fishing industry/recreational boaters



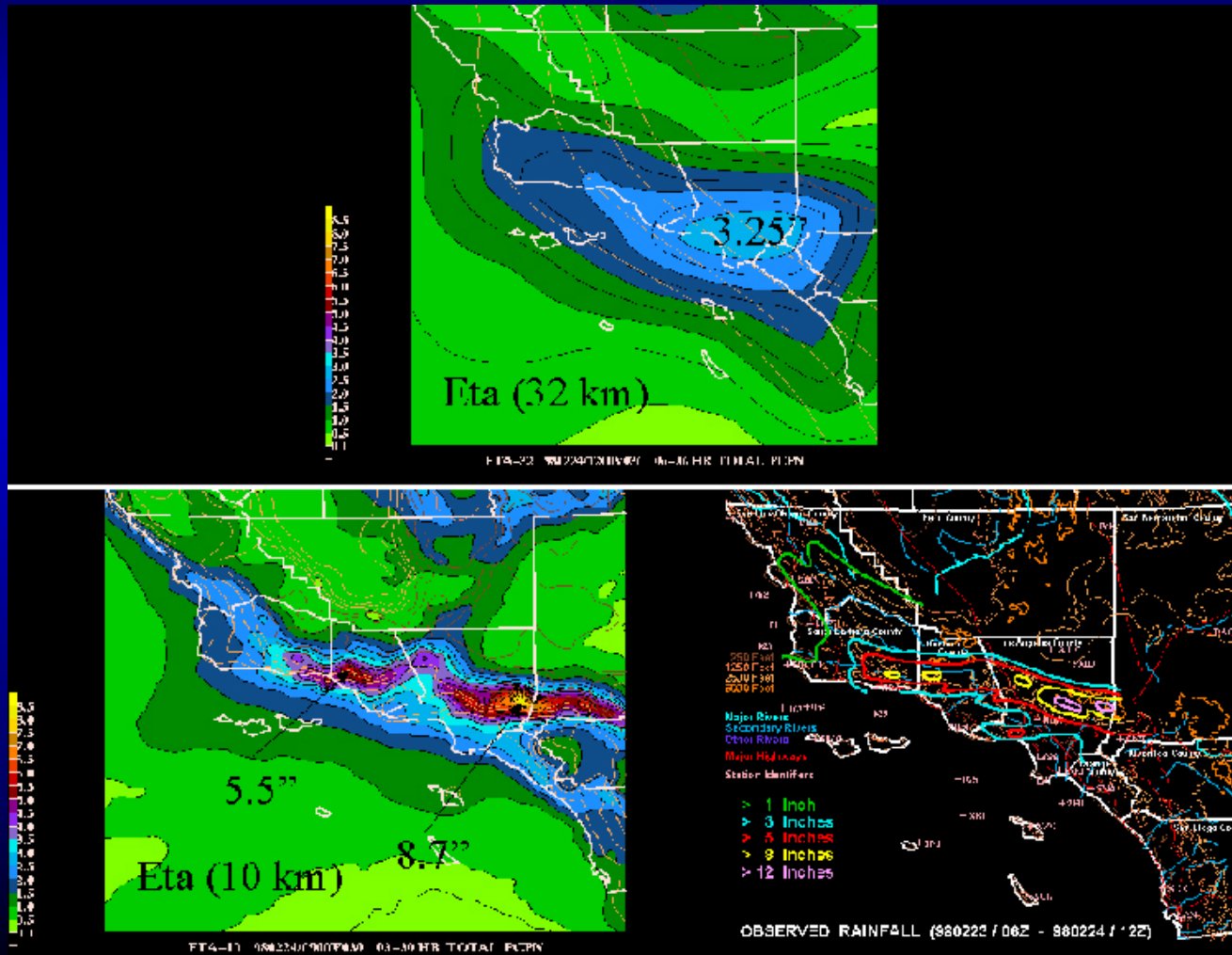
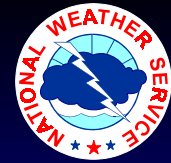
Process

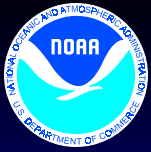


- **Central Processing (NCEP): Central Computer Operations**
- **Movement of Information: Telecommunications Gateway**
- **Local Process: AWIPS**

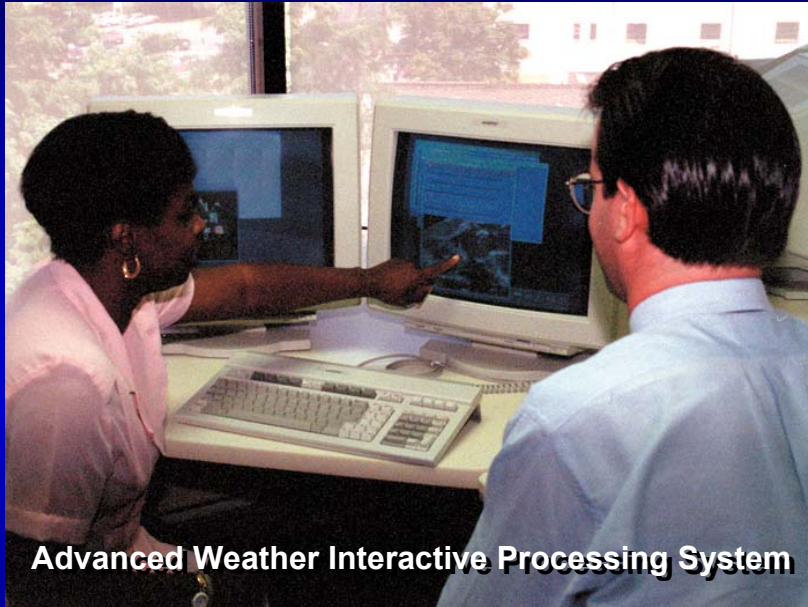
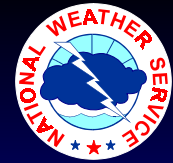


High Resolution Model Improvements





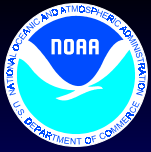
AWIPS



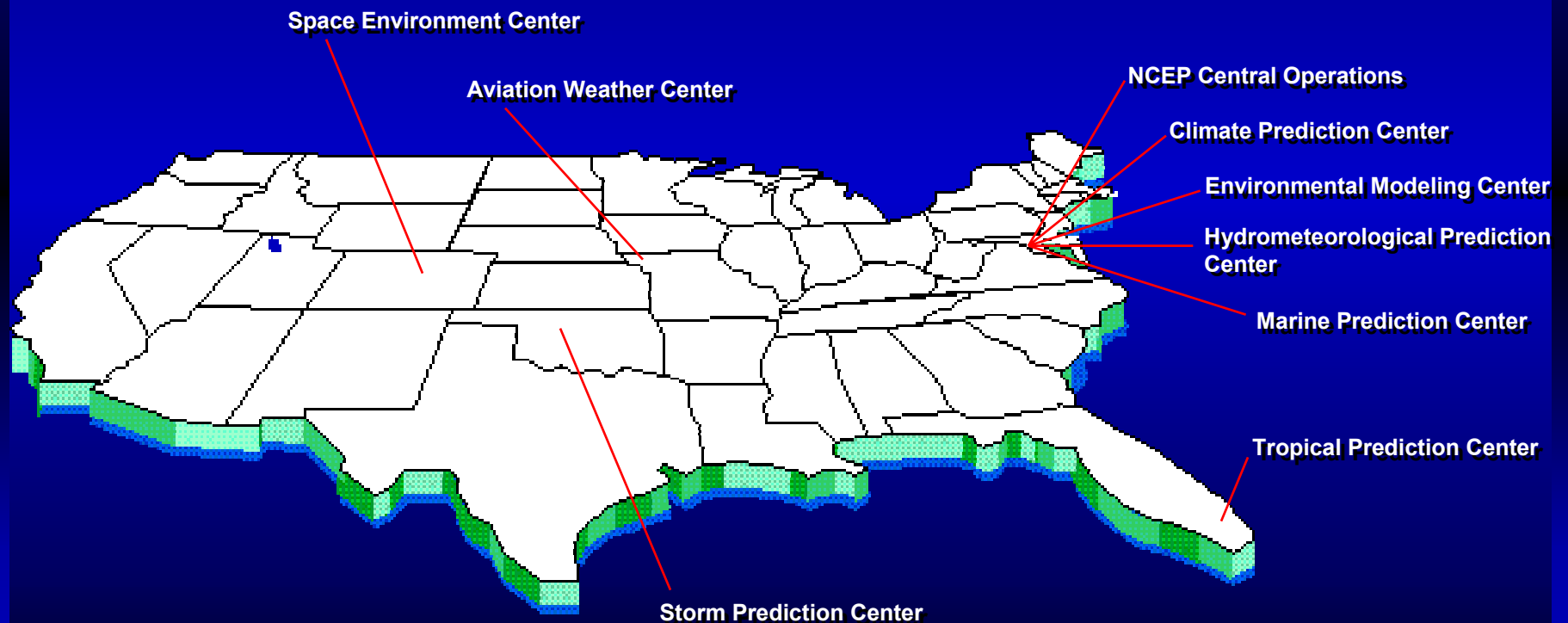
Advanced Weather Interactive Processing System

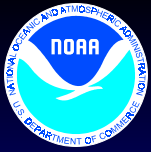
*The Key Integration
Technology AWIPS*

- The field office computer workstation used to forecast weather
- Data fusion engine
- Powerful display and analysis capability
- Modern communications network interconnecting sites
- Disseminate warnings and forecasts rapidly and reliably
- Smithsonian Computer World Award Program - 1999



National Centers for Environmental Prediction



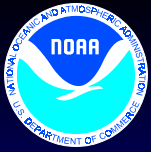


Products and Services

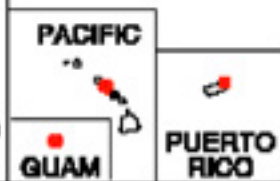
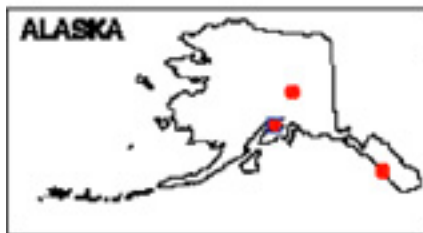


Local Office

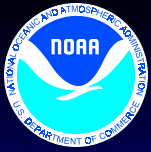
- Warnings
- Public Forecasts
- Aviation forecasts and warnings and enroute forecasts
- Marine warnings and forecasts



NWS Office Locations



- 121 Weather Forecast Offices
- 13 River Forecast Centers

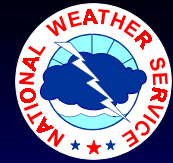
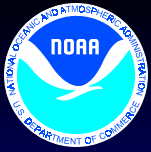


Distribute and Respond



Dissemination: Public/Private Partnership

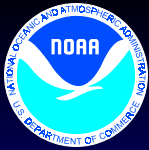
- NOAA weather wire service (Contractor)
- NOAA weather radio network
- NEXRAD information dissemination service (Contractor)
- Emergency weather information network
- Family of Services (Contractor)
- AWIPS Local Data Acquisition and Dissemination
- Internet
- National Warning System
- NOAAPORT



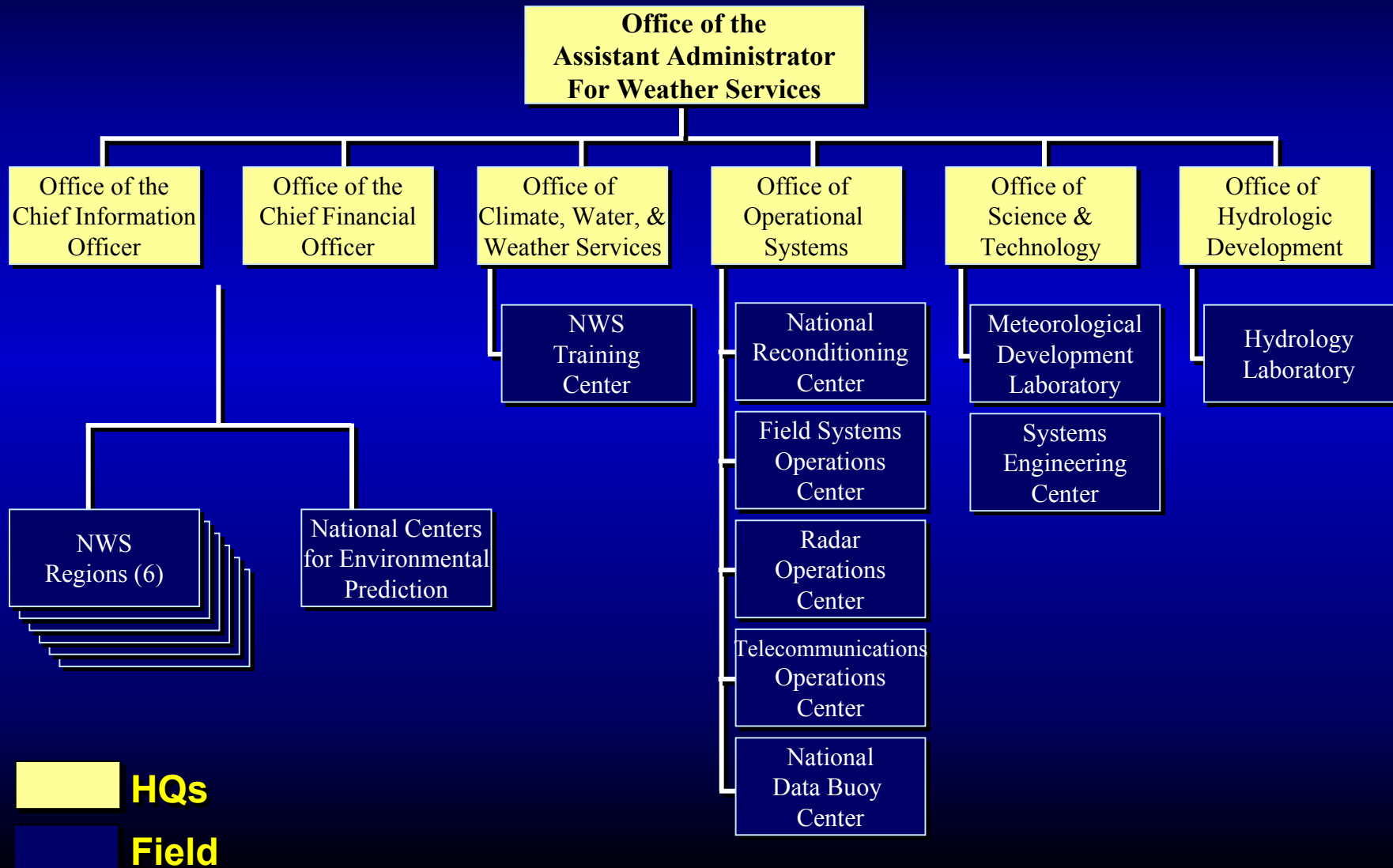
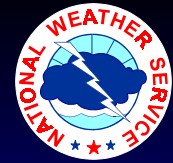
Distribute and Respond

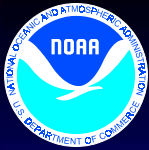
Customer Service, Response, and Evaluation and Improvement of Services

- User outreach & education, hazard awareness & preparedness
- Service assessment, performance verification



National Weather Service





Summer 2000

"The past summer will be remembered for the many wildfires caused by record-breaking drought and heat. It was the 11th warmest summer nationwide in 105 years. The average temperature nationally was 73.2 degrees"

Montana:
September 1999
through August 2000
was the warmest
period ever,
and the 11th driest

Tornado Alley: So far this year, the USA has
experience only half as many tornadoes as usual.

The Northeast: It was the 18th
coolest summer since 1895.

Heat/drought

Drought
eases

Wet & Cool

Stormy:
Thunderstorm
activity was 160%
above normal in the
area between
Chicago,
Boston, and
Washington.

Wildfires:
6.9 million
acres had
been scorched
by Sept. 18,
more than
twice the
10-year
average.

Exceptional heat/drought

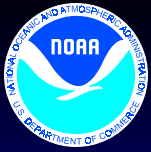
Alabama,
Florida, Georgia,
Louisiana and Mississippi:
Sept. 1999 through
Aug. 2000 was the
driest period on record.

Texas: Cumulative rainfall
of only about 1 inch made
this the driest July-August since
1895, when record-keeping began.

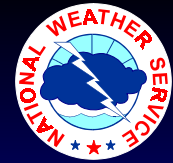
Alaska: The state was hot and
dry early, but cool and wet late.

Hawaii: The western
ends of the islands were dry.

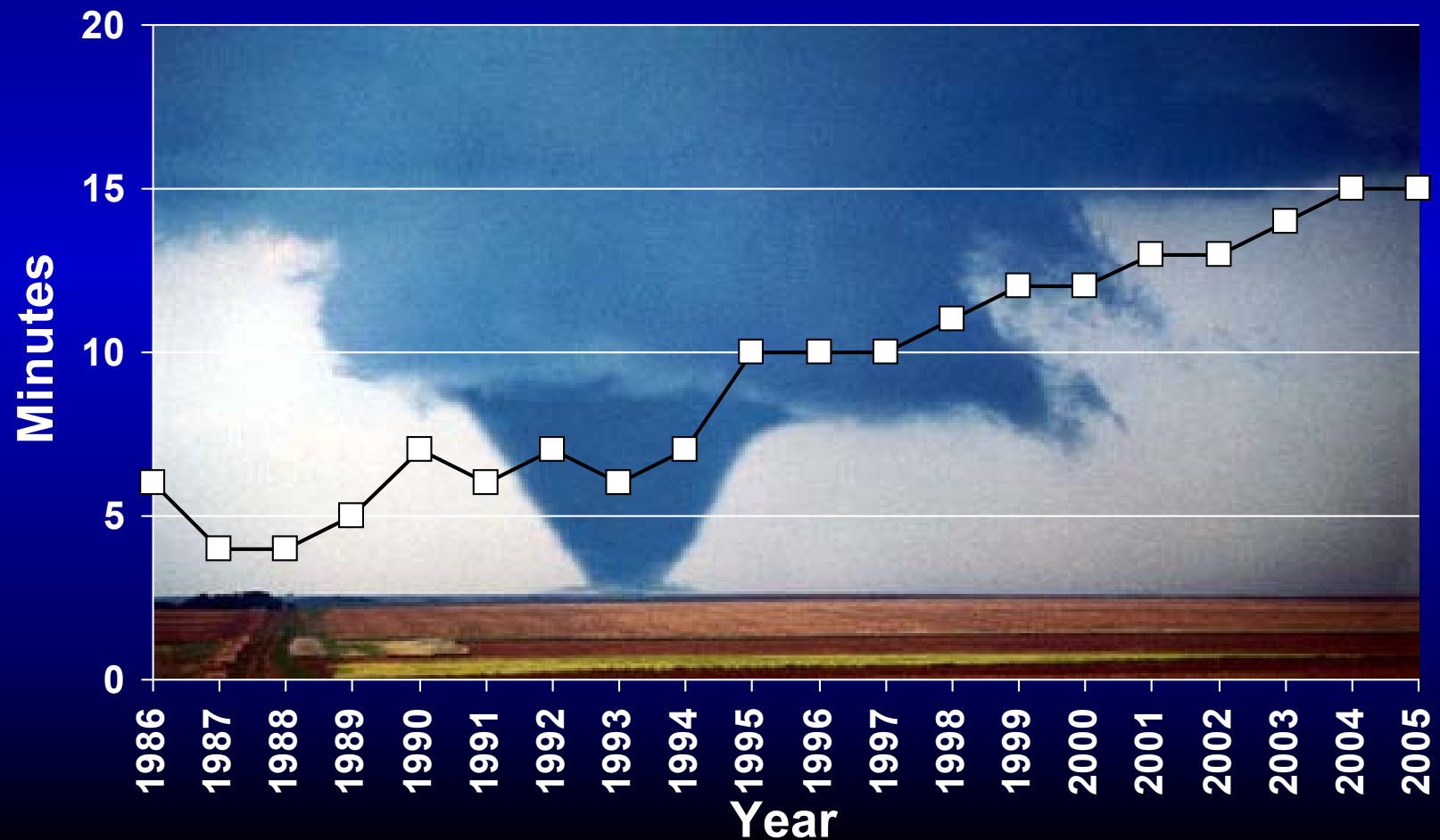
NOAA data as shown in USA Today graphic by Dave Merrill

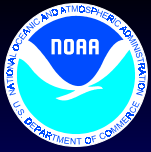


Technologies and Training are Improving Our Service

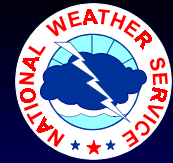


Tornado Warnings

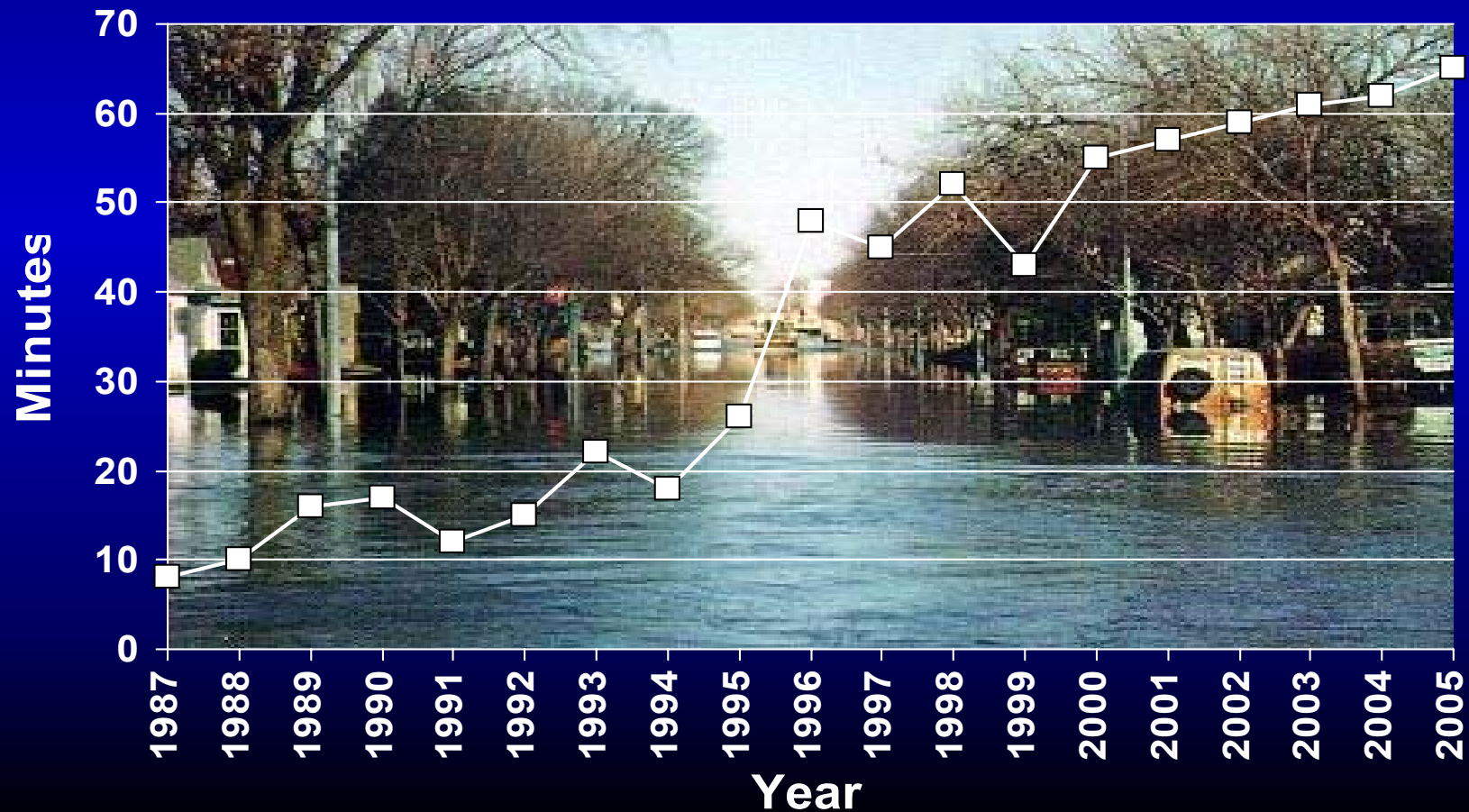


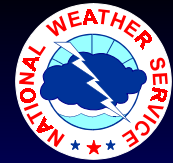
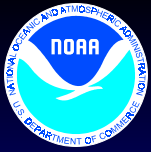


Technologies and Training are Improving Our Service

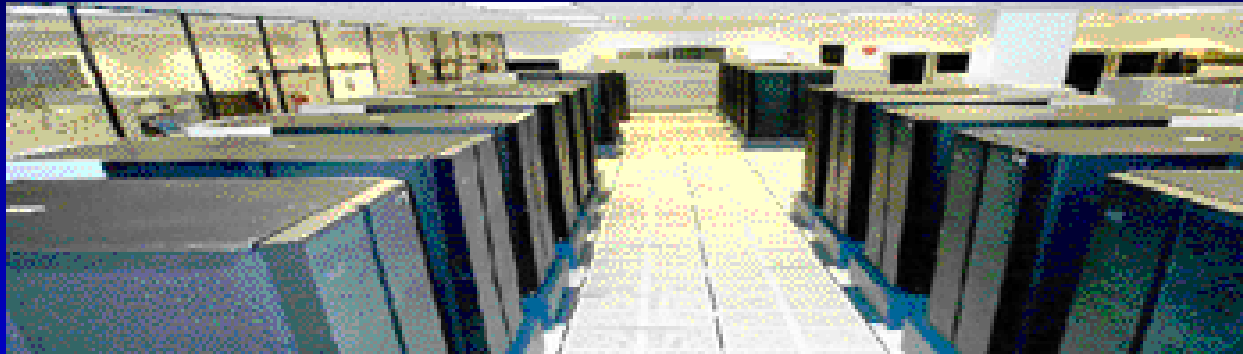


Flash Flood Warnings



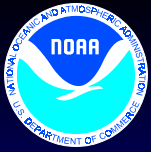


High Performance Computer



IBM SP at Bowie Computer Center in Bowie, MD

- **Ingests over 1.5 million observation reports daily**
- **Produces 52 gigabytes of information daily**
- **NCEP transits 81,000 products each day**
- **Global Models (Weather, Ocean, Climate)**
- **Domestic Models (Aviation, Severe Weather)**
- **Hazards Models (Hurricane, Volcanic Ash)**



Our Link to the Public

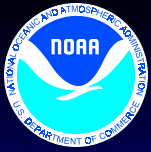


Weather Forecast Office (WFO)

- Prepares and issues forecasts and warnings
- Works with the public and state and local official
- 24 person team
- 24 hours-a-day/7 days a week

River Forecast Center (RFC)

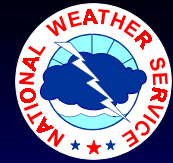
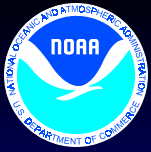
- Provides river forecasts and flash flood guidance
- Works with WFO in service area and other federal state and local agencies
- 16 person team
- 16 hours a day/7 days a week



NWS Budget Priorities

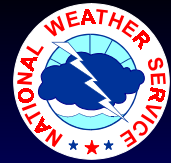
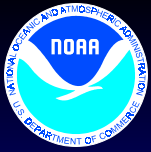


- **Sustain Current Services**
- **Replace Obsolete Observing Systems**
- **Infuse New Technology**
- **Enhance Services**

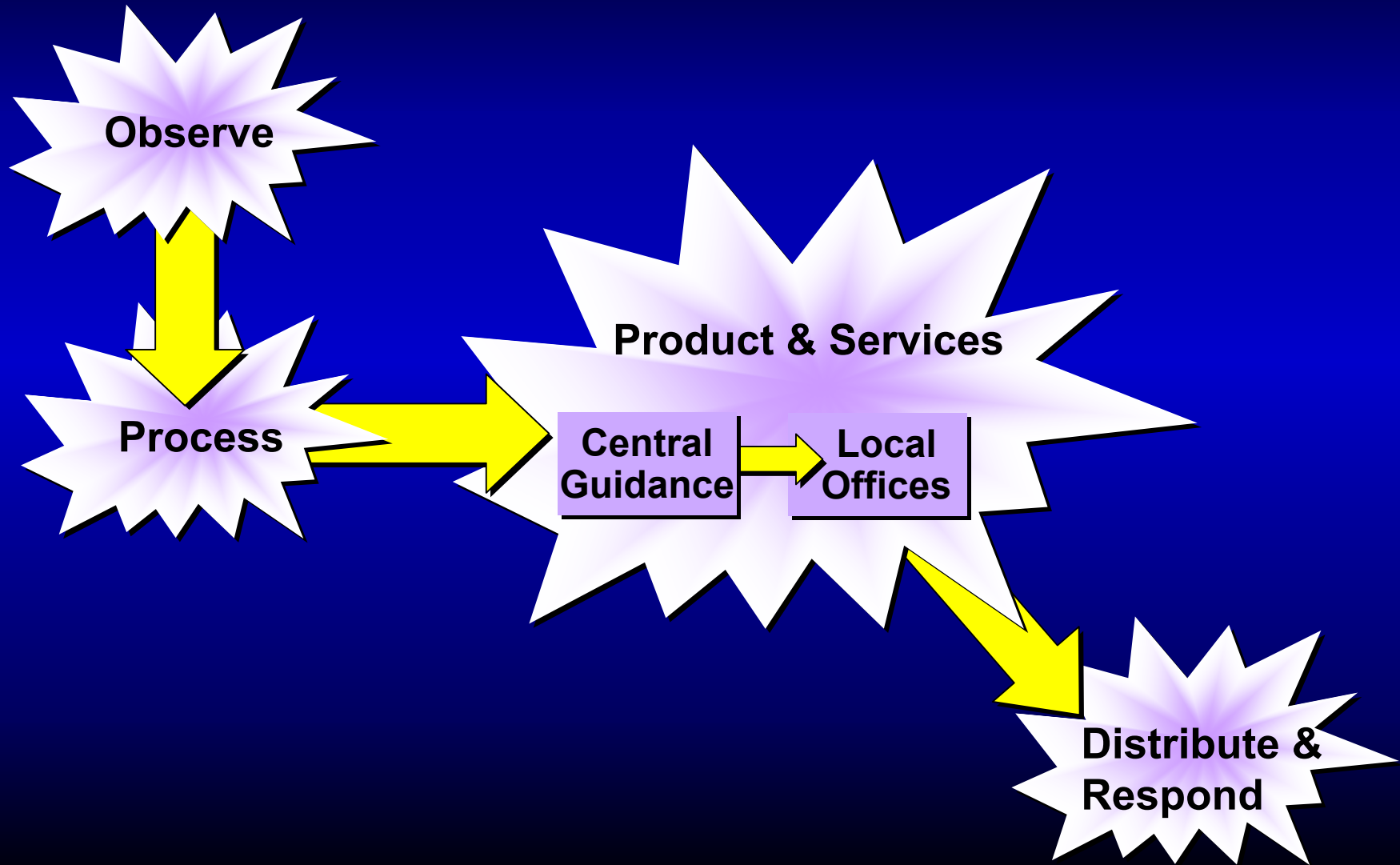


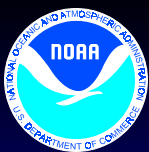
Key Budget Issues

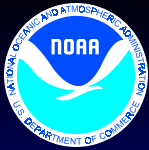
- **NCEP - Environmental Modeling Center Shortfalls**
- **NCEP - Leveraging Investment in Satellite Data**
- **Continuity of Operations - Critical Infrastructure Protection**
- **COOP Network Modernization**
- **Facilities – Alaska Offices & Camp Springs**
- **De-obligations and Corporate Costs**



Operational Cycle

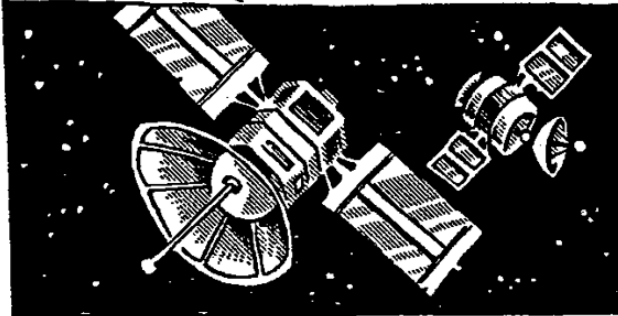






HOW ^{THE} WEATHER ^{IS} FORECAST:

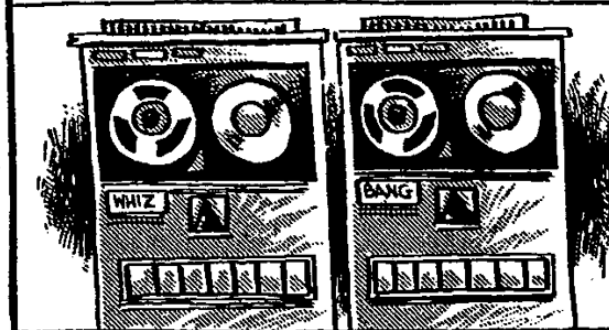
1 Highly sophisticated satellites gather detailed information on weather patterns:



2 This information is beamed down to super duper high-tech receivers on the ground:



3 The data is then thoroughly processed and analyzed by whiz-bang mega computers:



4 The weatherman flips a coin and determines the forecast:



MIKE THOMPSON Copley News Service

THOMPSON
THE STATE NEWS-SERVICE
COPLEY NEWS SERVICE



Significant Weather Events -- 2000

Updated October 17, 2000

